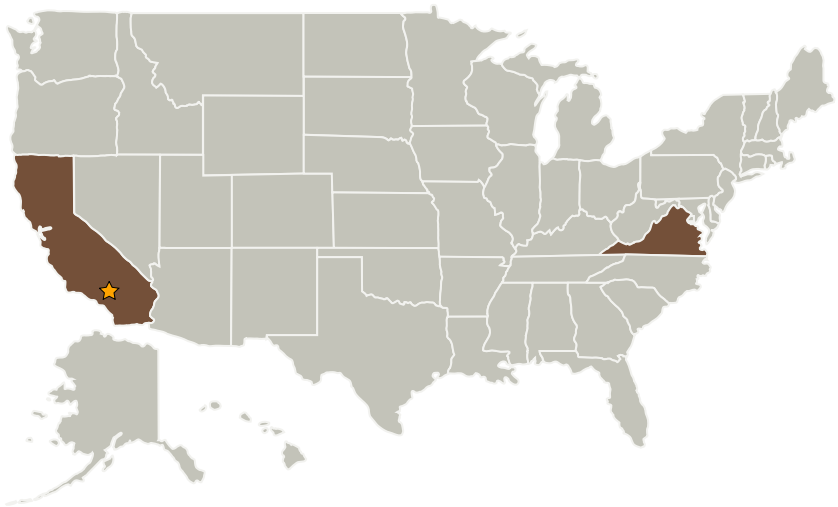
Flow-Angle and Airspeed Sensor System (FASS) Using Flush-Mounted Hot-Films, Phase I

Completed Technology Project (2006 - 2006)

Project Introduction

Micron-thin surface hot-film signatures will be used to simultaneously obtain airspeed and flow direction. The flow-angle and airspeed sensor system (FASS) will provide airspeed with practically zero-lag and to less than one knot accuracy and flow angularity to a fraction of a degree, with natural immunity to EMI and RFI. Unlike Pitot-static and other conventional techniques, which experience serious limitations in accuracy, pneumatic lags, and frequency response in thin upper atmospheres, FASS will measure airspeed all the way to zero knots and perform equally well at sea level as well at high altitudes and even in the thin Martian atmosphere. The FASS addresses important flight-operation and flight research problems with crucial impact on vehicle performance, stability & control, structural loads, and pilot action. FASS will permit easy integration with aircraft avionics systems including conventional instruments used for pressure, temperature, and density measurements. Sensor elements will be coated to withstand harsh environment and waterproofed for underwater applications. FASS will be developed and marketed both as a stand-alone device and as an embedded, non-intrusive system. Commercial applications include aerospace vehicles, submarines, ships, boats, atmospheric wind sensing, oceanographic measurements, and tall structures.

Primary U.S. Work Locations and Key Partners



Flow-Angle and Airspeed Sensor System (FASS) Using Flush-Mounted Hot-Films, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Armstrong Flight Research Center (AFRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Flow-Angle and Airspeed Sensor System (FASS) Using Flush-Mounted Hot-Films, Phase I

Completed Technology Project (2006 - 2006)

Organizations Performing Work	Role	Type	Location
★Armstrong Flight Research Center(AFRC)	Lead Organization	NASA Center	Edwards, California
Tao of Systems Integration, Inc.	Supporting Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Hampton, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
  - TX15.1 Aerosciences
    - TX15.1.1 Aerodynamics